

arterioles then respond by constricting back to their original diameter, or even smaller. This myogenic response is a response to stretch of the smooth muscle cells comprising the arteriolar wall. It is important in allowing the blood flow in some vascular beds to remain constant even when arterial pressure changes (*autoregulation*, or *pressure autoregulation*)

Natriuresis

This is an increase in the rate at which sodium is excreted from the body in the urine. It can be calculated from the urine flow rate multiplied by the urine sodium concentration.

Nucleus ambiguus

A diffuse collection of neuronal cell bodies in the ventrolateral part of the brainstem. An origin of motor fibres (somatomotor and parasympathetic) to the pharynx and palate, the upper and lower airways, the heart, lungs and oesophagus (see also *Dorsal vagal motor nucleus*).

Nucleus tractus solitarius

A sensory nucleus in the dorsomedial part of the brainstem. It can be subdivided into various subnuclei, including the medial, lateral and commissural subnuclei. It receives and integrates sensory information travelling in the VIIth (facial), IXth (glossopharyngeal) and Xth (vagus) cranial nerves. This sensory input arises from gustatory, airway, pulmonary, cardiac, gastric,

intestinal and other abdominal receptors.

Reflex gain

In a reflex an applied stimulus will evoke an appropriate response. In negative feedback control the response tends to minimize the evoked change and return the variable back to its initial level. If a stimulus-response relationship is constructed, the maximum slope of this relationship is the *gain* or *sensitivity* of the reflex. The absolute level of the variable which the reflex is tending to maintain is called its *set point*. In certain circumstances, the set point may be altered to a higher or lower value. This is termed *resetting* of the reflex.

Respiratory sinus arrhythmia

The speeding up of the heart rate during inspiration as a result of decreased vagal inhibitory action on the sinoatrial node. The response is partly a reflex due to activation of pulmonary stretch receptors but can occur even when lung inflation is prevented. In this case it is due to interactions in the brainstem between the activity of respiratory neurones (*central inspiratory drive*) and vagal motor neurones.

Reticular formation

A diffuse network of small neurones and fibres forming the 'core' of the brainstem. It is found in the most primitive vertebrates but is maintained throughout phylogenetic development. The constituent cells are not

organized into easily identifiable groups on the basis of their histology or connections.

Rostral ventrolateral medulla

A group of neurones in the ventrolateral part of the rostral brainstem. At least some are *bulbospinal*, sending axons to the *intermediolateral cell column* of the spinal cord where sympathetic preganglionic neurones are located, i.e. they can be thought of as 'presympathetic' interneurones. They are thought to provide one source of the *sympathetic vasomotor tone*. They are distinct from, but receive input from, the neurones in the *caudal ventrolateral medulla* which do not project to the *intermediolateral cell column*.

Sympathoexcitatory

An influence which increases activity in one or more sympathetic nerves. It is the converse of *sympathoinhibitory*.

Tachycardia

Increase in heart rate. Can be the result of one or more of the following: decreased parasympathetic (vagal) or increased sympathetic nervous activity or the release of adrenaline from the adrenal medulla acting at the sinoatrial node (*pacemaker*).

Vagus nerve

The Xth cranial nerve. A mixed nerve containing both afferent (sensory) fibres and efferent (motor) fibres. It

